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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/705,237	11/02/2000	Michio Osada	4029	4586

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EXAMINER

NGUYEN, THUKHANH T

ART UNIT	PAPER NUMBER
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1722

11

DATE MAILED: 06/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/705,237

Applicant(s)

OSADA ET AL.

Examiner

Thu Khanh T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-15 is/are allowed.
- 6) ☒ Claim(s) 1,4,9-11 and 16 is/are rejected.
- 7) ☒ Claim(s) 5-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Japanese reference Japanese reference (58-212840 – JP1).

The JP1 reference teaches a molding apparatus having a surface coating layer consisting of 20 wt% tungsten and the balance is nickel to improve the durability of the mold surface (see abstract).

The JP1 reference fails to disclose that the coating layer contains more than 20 wt% and less than 44 wt% of tungsten.

However, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the JP1 reference by provide a coating layer with appropriate composition of tungsten to improve the performance of the mold surface. It is well settled that determination of optimum values of cause effective variables such as these process parameters is within the skill of one practicing in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

3. Claims 1,4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the second Japanese reference (10-202,698 – JP2).

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The JP2 reference teaches a molding die comprising a coating layer of nickel and tungsten alloy (see abstract), wherein the coating layer is made of 44-60 wt% tungsten and has a thickness of 15 μ m.

The JP2 reference fails to disclose that the coating layer contains more than 20 wt% and less than 44 wt% of tungsten.

However, it would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the JP1 reference by provide a coating layer with appropriate composition of tungsten to improve the performance of the mold surface. It is well settled that determination of optimum values of cause effective variables such as these process parameters is within the skill of one practicing in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over the Japanese reference (10-286,845 – JP3) in view of one of the Japanese references (10-202,698 – JP2) or (58-212,840 – JP1).

The JP3 reference discloses a system for manufacturing of resin sealing semiconductor devices, comprising a die (20, 21) with a die cavity for sealing and molding electronic components (10, see the English abstract), wherein the die having a nickel, phosphorus and tungsten coating layer of 2 μ m-10 μ m. The JP3 reference, however, fails to disclose that the coating is a nickel-tungsten alloy with 20-60 wt% of tungsten.

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The JP2 reference discloses a molding die comprising a coating layer of nickel and tungsten alloy (see abstract), wherein the coating layer is made of 44-60 wt% tungsten and has a thickness of 15 μ m.

The JP1 reference teaches a molding apparatus having a surface coating layer consisting of 20 wt% tungsten and the balance is nickel to improve the durability of the mold surface (see abstract).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the JP3 reference by providing a nickel-tungsten coating with the tungsten as taught by JP2, JP1 references, because the nickel-tungsten coating would provide high corrosion resistance, or improve the durability of the mold surface.

Allowable Subject Matter

5. Claims 12-15 are allowed.
6. Claims 5-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
7. The following is an examiner's statement of reasons for allowance: the prior art fails to teach or suggest a die comprising a fixed die, a movable die, a concavity receiving an setting a support having the electronic component mounted thereto, a pot arranged at one die, a plunger fixed internal to the pot, a resin channel to transport resin material from the pot throughout the die cavity; and a coating layer on the surface of the upper and lower cavity, on an internal surface of the resin channel, on an internal surface of the concavity, on the internal surface of the

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pot, on the parting line between the dies, and on an external surface of the plunger; wherein the coating consisting of nickel-tungsten alloy with 20-60wt% tungsten.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

8. Applicant's arguments with respect to claims 1, 4-11 have been considered but are moot in view of the new ground(s) of rejection.

The Applicant argued that the JP1 and JP2 references do not disclose a coating layer contains more than 20 wt% to less than 44 wt% of tungsten. The JP1 reference discloses a coating layer with 20 wt% of tungsten. The JP2 reference discloses a coating layer with 44-60 wt%. It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to recognize that a coating layer containing 20-60 wt% of tungsten would work well for the molding art. Further, it would be within the scope of a skilled artisan to determine an appropriate amount of tungsten in the coating layer for different molding conditions and material. It is well settled that determination of optimum values of cause effective variables such as these process parameters is within the skill of one practicing in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

In regard to claim 16, the JP3 reference discloses a molding system and material for sealing and molding semiconductor devices. The mold includes a nickel-tungsten-phosphorus

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coating layer. Since the references JP1 and JP2 disclose that the coating of nickel-tungsten alloy provide high corrosion resistance, or improve the durability of the mold surface; it would have been obvious to one of ordinary skill in the art to replace the nickel-tungsten-phosphorus coating layer by a nickel-tungsten layer to improve the properties of the coating layer of the mold.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Khanh T. Nguyen whose telephone number is 703-305-7167. The examiner can normally be reached on Monday- Friday, 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

TN
June 23, 2003


ROBERT DAVIS
PRIMARY EXAMINER
GROUP 1300 1200
6/24/03